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MORGAN & FINNEGAN  
345 PARK AVENUE  
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EXAMINER

WU, DOROTHY

ART UNIT	PAPER NUMBER
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2615

17

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/265,070

Applicant(s)

YAMAGISHI ET AL.

Examiner

Dorothy Wu

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21, 26, 31-35, 40, 45-49, 54 and 59-71 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 and 60-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-21, 26, 31-35, 40, 45-49, 54, 59 and 69-71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed February 26, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Katayama teaches control means (signal processing unit **190**) for controlling to inhibit the optical system condition of said image sensing lens from changing when the release button is depressed to its first stroke position (col. 12, lines 24-43). Katayama further teaches that when the focal length for panoramic images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to lock in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. In the same field of endeavor, Okauchi teaches that an object selection button **29** on the camera main body is depressed again to perform a focusing operation when an object moves and a re-focusing operation is required (col. 23, lines 47-54). It would have been obvious to one

Art Unit: 2615

of ordinary skill that when a refocusing operation is needed, the images captured prior to the refocusing operation will have a different focal length than that of the images after the refocusing has completed. Therefore, as it is desirable for a set of panoramic images to have the same focal length, one of ordinary skill would have realized the need to finish the association of a plurality of images once the focal length has changed such that the plurality of images captured with a different focal length after the refocusing operation has been completed are not associated with the plurality of images captured prior to the refocusing operation.

The applicant has argued: "Okauchi is directed to a multi-eye image pick-up apparatus for stereoscopic images where the association process is less critical than the panoramic images." The office respectfully disagrees. Okauchi is directed to panoramic images (col. 5, lines 1-4).

As the applicant did not contest the office's use of Official Notice in Paper No. 10, the teaching that it is well-known to use the same image sensing conditions when sensing images that are to be associated with one another in a panoramic mode is hereby understood to be held as prior art.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17-21, 26, 31-35, 40, 45-49, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, as disclosed in the Information Disclosure Statement, in view of Okauchi et al, U.S. Patent 5,864,360.

Regarding claim 17, Katayama et al teaches an image processing apparatus (col. 1, lines 7-8) having a function of storing a plurality of sensed still images in a storage means (col. 1, lines 11-12, and col. 9, lines 21-24), comprising: image sensing means (image sensing unit **110**) comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); and control means (signal processing unit **190**) for controlling to inhibit the optical system condition of said image sensing lens from changing when the release button is depressed to its first stroke position (col. 12, lines 24-43). Katayama et al further teaches that when the release button is then depressed to its second control position, image data is sensed and stored to memory (col. 12, line 44-col. 13, line 4). Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to lock in the

Art Unit: 2615

focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not the optical system condition change instruction means for outputting a signal indicating that the optical system of said image sensing lens is operated by a user; nor does Katayama teach the finishing of an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi teaches an object selection button **29** on the camera main body (col. 5, lines 36-39), and that this button is depressed again to perform a focusing operation when an object moves and a re-focusing operation is required (col. 23, lines 47-54). The optical system condition change instruction means for outputting a signal indicating that the optical system of said image sensing lens is operated by a user is inherently taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of restarting the focusing when the object has moved taught by Okauchi et al to make an apparatus that finishes associating captured images with one another when the image sensing apparatus detects an out-of-focus state and sends a command to change the optical system condition by refocusing. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Art Unit: 2615

Regarding claim 18, Okauchi teaches that the optical system condition is a focal length of said image sensing lens (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50).

Regarding claim 19, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 20, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 21, Katayama in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 17. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Regarding claim 26, Katayama et al teaches control means (signal processing unit 190) for controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

Regarding claim 31, Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising: image sensing means (image sensing unit 110)

Art Unit: 2615

comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); optical system condition change instruction means (in-focus detector **142**) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11).

Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to include a control step for locking in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not teach the step of finishing an associating operation of images after a plurality of images, which have been sensed, are associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing



Art Unit: 2615

when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus detects an out-of-focus state and sending a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Regarding claim 32, Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

Regarding claim 33, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 34, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 35, Katayama in view of Okauchi teach an apparatus that captures images of the same focal length for synthesizing a panoramic image, and that the apparatus restarts a hill-climbing focusing operation when the apparatus detects object movement. See claim 31. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Art Unit: 2615

Regarding claim 40, Katayama et al teaches control means (signal processing unit **190**) that perform the step of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

Regarding claim 45, Katayama et al teaches an electronic camera system 100 comprising a computer that operates in accordance with pre-set programs (col. 9, lines 19-21). The storage medium that stores the coded programs for executing control over the camera and its processes is inherently taught. Katayama et al teaches a control method for an image processing apparatus (col. 1, lines 7-8) comprising: image sensing means (image sensing unit **110**) comprising an image sensing lens **101** which can change an optical system condition (col. 9, lines 53-54, and col. 11, lines 14-17); storage means (image memory **130**) for storing a plurality of images sensed by said image sensing means (image sensing unit **110**) in association with each other (col. 9, lines 21-24, 25-29, and col. 1, lines 11-12); and optical system condition change instruction means (in-focus detector **142**) for outputting an instruction for changing the optical system condition of said image sensing lens (col. 11, lines 54-58, 67-col. 12, lines 1-11). Katayama teaches that when the focal length for images remains the same, captured images are contiguous with one another and can be coordinate-transformed using only vertical and horizontal translation amounts (col. 43, lines 52-59). It would have been obvious to include a control step for locking in the focal length when capturing images for a panoramic image to obtain images that can be synthesized by mere translation. Katayama does not teach the step of finishing an associating operation of images after a plurality of images, which have been sensed, are

Art Unit: 2615

associated with each other upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system change instruction means after a first one of the plurality of images to be stored in said storage means in association with each other is sensed and stored.

Okauchi et al teaches that the focusing point evaluation value is continually monitored such that when an object changes, a hill-climbing focusing operation restarts (col. 15, line 57-col. 18, line 25; col. 23, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of setting an in-focus position for panoramic image capture prior to image sensing taught by Katayama et al with the practice of continually monitoring the in-focus state of the subject and restarting the focusing when the object has moved taught by Okauchi et al to make a control method that comprises the steps of finishing an association of captured images with one another when the image sensing apparatus detects an out-of-focus state and sending a command to change the optical system condition by performing a hill-climbing focusing operation. One of ordinary skill would have been motivated to make such a modification to ensure that all images the in plurality of associated images shall be in focus.

Regarding claim 46, Katayama et al teaches that the optical system condition is a focal length of said image sensing lens (col. 11, line 54-col. 12, lines 8, 19-26).

Regarding claim 47, Katayama et al teaches that the association of the plurality of images is obtaining of a panoramic image by synthesizing the plurality of images (col. 1, lines 10-12).

Regarding claim 48, Katayama et al teaches that the plurality of images are images sensed by performing pixel shift, and associating the plurality of images is obtaining a high-

Art Unit: 2615

resolution image by synthesizing the plurality of images sensed by performing the pixel shift (Figs. 6 and 15; col. 10, lines 34-48; col. 19, line 10-col. 21, line 3).

Regarding claim 49, Katayama in view of Okauchi teach a storage medium, wherein the control program comprises the steps of capturing images of the same focal length for synthesizing a panoramic image, and restarting a hill-climbing focusing operation when the apparatus detects object movement. See claim 45. It would have been obvious to one of ordinary skill to start sensing a plurality of new images to be stored in association with each other after the associating operation of images is finished. One of ordinary skill would have been motivated to make such a modification to abandon a set of out-of-focus images to capture a set of in-focus images for use in synthesizing a panoramic image.

Regarding claim 54, Katayama et al teaches a control program comprising the steps of controlling to set the optical system condition of said image sensing lens at an initial value before sensing of a first one of the plurality of images to be stored in said storage means in association with each other is started (col. 11, lines 54-58, 67-col. 12, lines 8, 19-23).

3. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, in view of Okauchi et al, U.S. Patent 5,864,360, and further in view of Arai et al, U.S. Patent 5,600,371, disclosed in the Information Disclosure Statement.

Katayama in view of Okauchi teach the apparatus according to the limitations of claim 17. See above. Katayama in view of Okauchi do not teach that the change in the optical system condition is the attachment/detachment of the optical system. Arai et al teaches that when the lens is detached from the camera, the driving means of the lens is stopped, thereby prevented

Art Unit: 2615

from outputting a signal to change the optical system condition (col. 11, lines 56-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate an alert when the image sensing lens has been detached from the lens. One of ordinary skill would have been motivated to make such a modification to cut off power from the system when image sensing can no longer be performed properly to conserve power.

4. Claims 69-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama et al, U.S. Patent 6,389,179, in view of Okauchi et al, U.S. Patent 5,864,360, and further in view of well-known prior art.

Regarding claim 69, Katayama in view of Okauchi teach the apparatus of claim 17. See above. Katayama in view of Okauchi teach that when the scene becomes out of focus, a hill-climbing focusing operation begins again, and a new set of images are taken. See above. Katayama in view of Okauchi do not teach an alerting means for alerting upon reception of the instruction for changing the optical system condition of said image sensing lens from said optical system condition change instruction means. The examiner takes Official Notice that it is well-known in the art to let the user know which set of images will be grouped together for a panoramic image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alert the user upon reception of the instruction for changing the optical system condition of the image sensing lens. One of ordinary skill would have been motivated to make such a modification to alert the user that previous images will be discarded and the next images to be captured shall constitute the panoramic image.

Art Unit: 2615

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dorothy Wu whose telephone number is 703-305-8412. The examiner can normally be reached on Monday-Friday, 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Dorothy Wu*

DW

June 3, 2004



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